

TEACHERS' CONCEPTIONS OF SELF-REGULATED LEARNING - A COMPARATIVE STUDY BY LEVEL OF PROFESSIONAL DEVELOPMENT

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Abstract - *The article outlines the importance of teachers' conceptions regarding Self-Regulated learning. In the frame of a cognitive-constructive understanding of teachers' professional development, their behaviour and actions are closely connected with their individual systems of beliefs, values and principles.*

In the theoretical part of the article, three models are outlined. Each model demonstrates how teachers' conceptions influence the reflection, perception and actions of teachers. In the second part of the article, the empirical research is presented. In the research Slovenian language teachers from elementary (N=360) and grammar school (N=182) participated. The main aim of the research was to find out differences in teachers' conceptions regarding regulated learning between groups of teachers according to the level of their professional development (F. Fuller). The level of professional development was determined according to the questions that teachers ask themselves during their work.

Key words: *external regulation of learning, professional development, self-regulated learning, teachers' conceptions*

1. Introduction

In a complicated and constantly changing world, the role of a teacher is becoming increasingly demanding, and because of that much attention has been directed to teachers' professionalism (Cochran-Smith, 2000). As many researchers have indicated (e. g. Lang, 1999, 10) there should be a radical change in how teachers as professionals are perceived. It is teachers together with their skills and their readiness to develop, who represent the main factors for (positive) change in education. Thus the questions "Who is a good

teacher?” (What are the essential qualities of a good teacher and how can we help students to become good teachers?), as quoted by Korthagen (2004, 78), are very popular and important at the moment. In seeking the answers to these questions, a teacher’s personality and identity play an important part. Korthagen (2004, 81) puts the matter succinctly: Nowadays, increasing attention is being paid to beliefs that people have about themselves. Many researchers (ibid.) have turned to the stories of teachers - the narrative approach. This approach is based on the premise that the way in which teachers think about education is embedded in the stories they tell each other and themselves. In this article, teachers’ conceptions are linked to teachers’ professional development. The aims of the empirical research were as follows: Firstly, to find out what conceptions teachers have about the regulation of their own learning process and how they perceive their knowledge. Secondly, to establish what conceptions teachers have about the learning process and how they perceive their students’ knowledge, and finally teachers’ conceptions were compared between the groups of teachers according to the level of their professional development. The main support for placing teachers at a certain level of professional development was presented by Fuller’s (1969) level of concerns model, which identifies three concerns through which student teachers progress as they learn to teach. Initially, teachers are concerned about themselves and their teaching techniques (self concerns). They then become concerned about delivery of content, irrespective of the learner response (task concerns), and finally they are concerned for the pupils and the process of learning (impact concerns) (see Fuller & Brown, 1975).

2. Theoretical background

2.1 The importance of researching teachers’ conceptions

Researchers studying the behaviour of teachers and how they were trained stress the importance of knowing what teachers think and what their beliefs are (Pajares 1992). Within the frame of a cognitive-constructive understanding of teachers’ professional development, their behaviour and actions are believed to be closely connected with their individual systems of beliefs, values and principles (Kagan, 1992, Fang, 1996). Trigwell and Prossner (1996) established a statistically significant correlation between conceptions of teaching and approaches towards teaching, and between conceptions of teaching and conceptions of the learning process, as well as correlation between conceptions of the learning process and approaches towards teaching.

Before presenting the results of the research in the second part of the article, the theoretical origins of conceptions of knowledge will be summarized in order to stress the importance and necessity of researching teachers’ concep-

tions. As pointed out by Clark and Peterson (1986), researching teachers' conceptions goes along with researching teachers' cognitions that present an integral part of teacher professionalism. One of the main objectives in researching teacher's conceptions is profound teacher self-recognition, or as pointed out by Clark and Peterson (1986), it is absolutely necessary to assist teachers on their way from implicit directed system of personal expectations to an explicit description of their cognitive reference frame. This represents the basis for teachers' professional development, and only in this way can teachers progress along with their students (Clark & Petersen 1986).

2.2 Models of teachers' conceptions

There are many models that demonstrate how teachers' conceptions influence the reflection, experience and actions of teachers (Elbaz, 1983, Clark, Petersen, 1986,ect.) In this article three models are presented: The first (1) is Clark and Petersen's model (1986) of the reciprocal relationship between teachers' cognitive processes and teachers' actions and the consequences of teachers' actions (results). The second (2) model is the "onion model" (Cf. Korthagen, 2004) that represents many layers of a teacher's personality. This model places beliefs in one of the deepest layers. The third (3) is Shein's model (1998), which demonstrates what is happening inside teachers in a specific situation (e.g. an event in a classroom) before they react to the situation.

Clark and Peterson (1986) developed a model (see Figure1) of the reciprocal relationship and coinfluence between teachers' cognitive processes and teachers' actions and also between the consequences of teachers' actions (results). Clark and Petersen placed the model into a wider social context. The authors (ibid.) mention that teachers' cognitive processes are conceptualized

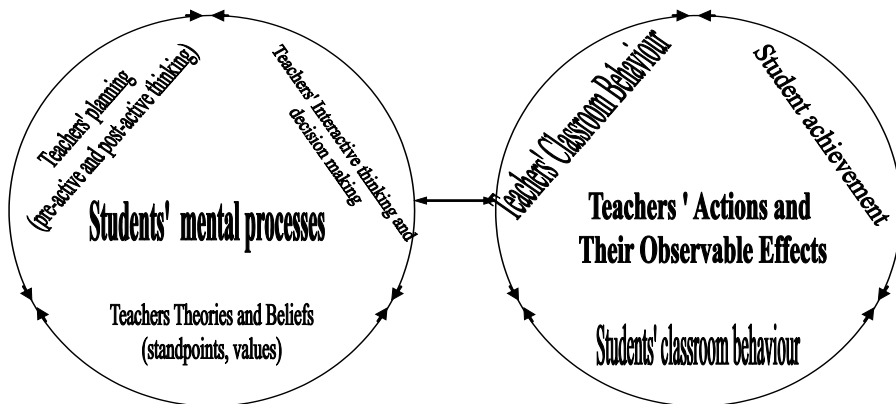


Figure 1. A model of teacher thought and action (Clark, Petersen 1986, 257)

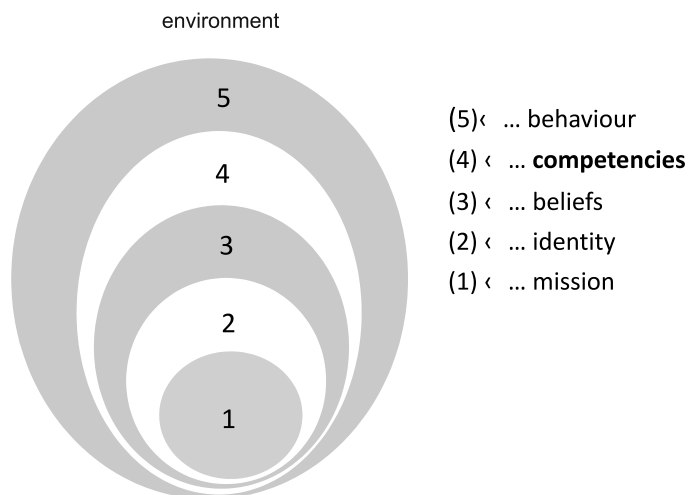


Figure 2. The onion: a model of levels of change (Korthagen 2004, 80)

as having three components (preactive, interactive and post-active). There is a reciprocal co-influence between teachers' planning and analysis, between decision making and teachers' beliefs and between conceptions and implicit theories.

The second model that will be presented is the **onion model** (Cf. Korthagen 2004).

This model shows that there are various levels within people that can be influenced.

From the picture it can be seen that the most profound, and at the same time the most resistant to change (1) is a teacher's unique personality, the irreversible unit of psychophysical characteristics, followed by (2) a layer of teachers' general definitions of their own role, their professional identity (the answer to the question, "Who am I when I play the role of a teacher and what is my mission in school?"). The next layer (3) is occupied by teachers' beliefs about different views on the educational process: their mental models, conceptions about knowledge, learning, teaching, and lessons. This layer is followed by the layer of competencies (4) or a complex system of knowledge, skills, strategies, emotional elements, and routines for the use of those competencies. The outermost levels are (5) those of the environment (the school, the class, the students) and behaviour. As established by Korthagen (2004, 80), these are the levels that seem to attract the most attention from student teachers: they often focus on problems in their classes, and the question of how to deal with these problems. The inner layers influence the outer layers but are less accessible to consciousness and more resistant to change. According to this

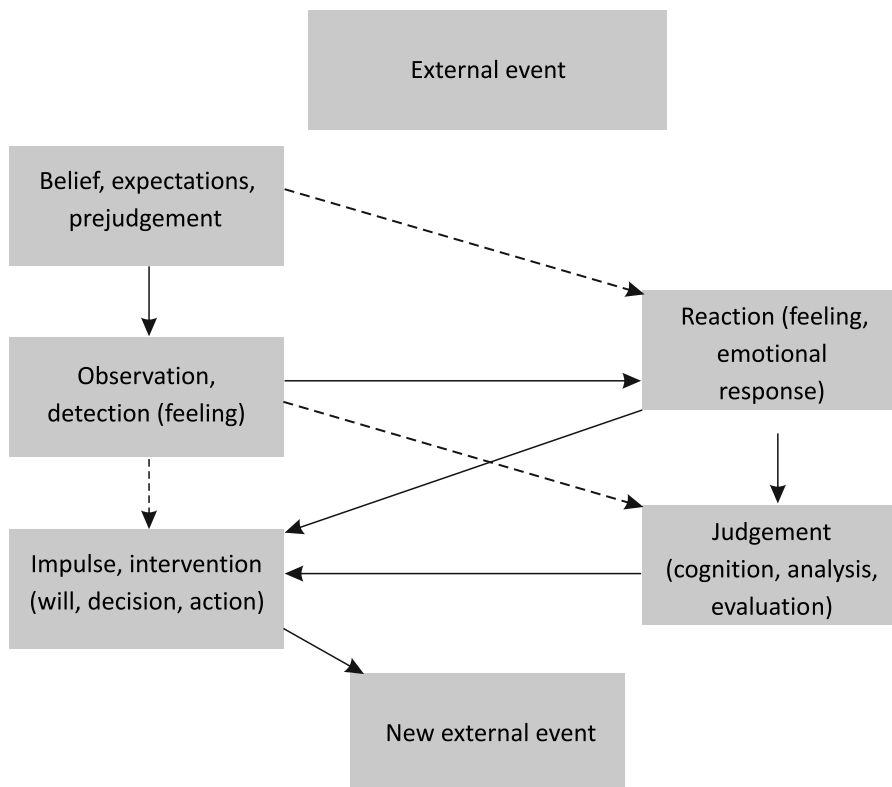


Figure 3. ORJI Cycle- Teachers' inter-mental processes from perception to action (Schein 1998)

model, a teacher's unique personality, professional identity, perceptions and competencies determine the teacher's teaching strategies and consequently the quality of students' learning opportunities. The third model demonstrates **what happens inside teachers in a particular situation** (e.g. an event in the classroom, conversation with parents, principal's demands etc.) **before they react to the situation** (see Figure 3). The diagram shows the inter-mental processes that evolve in teachers from the moment they perceive the situation until their action or intervention-ORJI cycle (Schein, 1998).

From the diagram it can be seen that teachers first (1) detect and observe a situation – O (Observation). Then they react emotionally to the situation (2) - R (Reaction). On the basis of detection and their own experience (3), they analyse, assess and judge the situation - J (Judgement). Then they (4) react to the situation and intervene in the situation in order to cause a desired change – I (Intervene). Teachers' beliefs, expectations, and prejudices influence how teachers detect and judge a situation. These represent a filter at the level of ob-

ervation, which is never completely precise, since the human neuron system is proactive. This means it is programmed through previous experience and thus actively selects data that arrive through the senses (ibid. 87). Teachers' perceptions about the lesson, the role of a teacher, the role of a student, learning, and teaching - all of which a teacher gains through the process of schooling as a university student and a secondary school pupil - play a very important part in shaping a future teacher and represent an integral determinant of a teacher behaviour in the classroom.

Various authors (E. g. Feiman-Nemser 1983, Zeichner, Tabachnick, Densmore, 1988) state that teachers themselves spend many years as students in school, during which time they develop their own beliefs about teaching, many of which are diametrically opposed to those presented to them during their teacher education. For example (as quoted by Korthagen, 2004, 81), they may acquire the idea that the process of teaching involves transmission of knowledge, and most teacher educators find this belief not very beneficial to becoming a good teacher. In most cases, it is these old beliefs that prevail (Ibid p. 81). It is very important that teachers "shake" their conceptions and change them. As Korthagen and Lagerwef (1996) state, teachers are also learning and developing professionally along with the conscious and systematic construction of meaning, and this consequently causes changes in experience and perceptual frames. According to Gow and Kember (1993, 1994), a change in teachers' conceptions represents an impetus to change the working context and consequently to achieve better learning outcomes for students.

3. Research based on Slovenian teachers

3.1 Theoretical perspective

In this article only some results of the empirical research are presented about teachers' professional development. The main aims of the empirical research were as follows:

1. We wanted to explore the extent to which teachers' conceptions are oriented towards the traditional view of external regulation of learning, according to which a teacher is an expert who is in charge of the learning process or, on the other hand, towards the process-oriented view, which entails sensitivity to the learners' internal regulation processes.

2. We aimed to measure the difference in process-oriented teachers' conceptions of the regulation of learning considering teachers' levels of professional development (Fuller 1969).

The key question here was to what extent teachers perceive learning as a process that is inner regulated in comparison to an external regulation of learn-

ing. Inner regulated learning or self-regulated learning (Schunk & Zimmerman, 1998) in the literature, terms like "independent learning", "self-directed", and "self organized" learning are also common (Vermut & Van Rijswijk, 1988, Pečjak & Košir, 2003) is a complex interactive process, within which cognitive self-regulation and inner motivation are typical. External regulation of learning gives students little autonomy in their process of learning. Why is it important that teachers perceive the learning process as a self-regulated process? Several researches (Pintrich & Marx & Boyle, 1993, Hofer & Yu & Pintrich, 1998) have shown that the more demanding the process of learning (this is especially notable in problematic class) and the stronger is the need for mental and emotional engagement of students then the term construct of the control origin becomes obvious. Students who accept inner control and believe that they can influence and control their process of learning show better results in learning situations and also get more involved when it comes to discrepancies between previous knowledge and new situations.

Based on factorization (in research by Bolhuis, Voeten, 2004) there are sets of teacher statements that show their conceptions of a) students' regulation of learning and b) their own regulation of learning. In the two tables, on the left side there are traditional oriented statements and on the right side process oriented teachers' statements about regulation of learning.

a) Teachers' conceptions of student learning:

<i>External regulation of learning (traditional statements):</i>	<i>Internal regulation of learning (process-oriented learning):</i>
School is compulsory for students, thus you can expect motivation problems.	Students lose their motivation in school if everything is presented in a predigested way.
In general, students are not able to work on their own.	Students are capable of working on their own.
If I do not tell students exactly what to do, nothing will be achieved.	Students achieve better results when they have a certain amount of freedom in their work.
Learning will be the most successful when a teacher is in charge of the learning process.	Learning will be the most successful when the students themselves take the initiative.

b) Teachers' conceptions of their own learning:

<i>External regulation of learning (traditional statements):</i>	<i>Internal regulation of learning (process-oriented learning):</i>
Research results are useful when researchers present them with ready to use applications.	I find research results useful when they give me new ideas or make me think.
I learn most from a study day when I am told exactly what it is about and what I should do.	I learn most from a study day when I have to discover and learn by myself how it works.
I prefer to follow a course set by an experts.	I prefer to make my own plan and work things out in my own way.
A teacher's manual should give me clear instruction on how to use each chapter.	If a teacher's manual thoroughly explains the main idea, I can do the rest myself.

These statements were also used in the questionnaire. In the questionnaire two extreme statements were written. On the left side it was a traditional one and on the right side a process-oriented one. With each couple of statements a respondent assessed his/her level of agreement by choosing the following numerical values:

1-I totally agree with the statement on the left; 2-I agree more with the statement on the left than with that on the right; 3-I agree more with the statement on the right than with that on the left; 4-I totally agree with the statement on the right.

The results were summoned and all statements were considered as one sum. The results were presented in the form of average ranks where a higher average rank value signifies more process oriented teachers' conceptions and a lower value signifies more traditionally oriented conceptions (Cf. note*)

3. 2 Methodology

3. 2. 1 Method

The research was based on descriptive and causal non-experimental methods of empirical pedagogical research (Sagadin, 1993).

3. 2. 2 Participants

The main constituents in the study were elementary and grammar school¹ teachers of the Slovenian language. From the list of elementary schools in Slovenia, we randomly selected 45% (200 elementary schools). From the list of grammar schools, we selected 70% (40 grammar schools). The reason for this was that previous experience and enquiry have shown that lower levels of participation can be expected from grammar schools than from elementary schools. All teachers of the Slovenian language working in these schools were asked to participate. The sample consisted of 542 teachers of the Slovenian language (360 from elementary school – 66.4% and 182 from grammar school – 33.6%). In the sample, female teachers prevailed (498, 91.9%) in comparison to 44 (8.1%) male teachers. This proportion is expected and considered normal because of the feminisation of the teaching profession.

1 Elementary school is compulsory and lasts for nine years (pupils start at the age of six and finish at the age of fifteen). Grammar school is schooling that follows primary school, and which prepares students for study at university. Grammar school lasts for four years, and it ends with the external Matura examination (for more information on Slovenian education system, please see *White Book on education and learning in the Republic of Slovenia (1995)* or visit www.mss.gov.si)

3. 2. 3 Data collection and processing

Data was gathered via anonymous questionnaire. Requests for participation were sent to the principals of the elementary and grammar schools included in the sample. Each principal was asked to distribute questionnaires to teachers of the Slovenian language at their school. In an introductory section, teachers were acquainted with the aims of the survey and were asked to participate by filling in the questionnaire. 970 questionnaires were distributed, of which we received back 542 (55.9%) completed questionnaires.

3. 2. 4 Measures

The questionnaire for teachers dealt with teachers' conceptions of learning. It consisted of three sections. In the introductory section, the purpose of the survey was presented. There were instructions for completion and general questions about the teacher (gender, level of education completed, seniority, title, and post-secondary institution completed). The second section included two sets of four-level descriptive assessment scales. The first set related to teachers' conceptions of self-regulated learning in comparison to the external regulation of learning with regard to their own learning. The second set of four level descriptive assessment scales was related to teachers' conceptions about regulation of learning when it comes to their students. The sets of scales were inspired by the Bolhuis and Voeten (2004) inventory. The items were translated, and adapted to the Slovenian situation. Binary items described two extremes: **external regulation of learning** – as the traditional conception that a teacher has towards learning, and *self-regulated learning*- as the process-oriented perception or attitude of a teacher). Teachers participating in the survey had to estimate which orientation was closer to them. The statements written in the questionnaire are listed in section 3.1.

The third part of the questionnaire was a closed question type, where teachers had to indicate which of the questions listed seemed most commonly associated with them during their work. Although there are many models and stages of teachers' professional development (Fuller 1969, Chickering 1991, Berliner, 1992, 1994, Huberman, 1995) we concentrated on F. Fuller's model (1969) since it presents one of the first empirical attempts to present the stages of professional development. A teacher's professional development should normally consist of three stages: *self concerns*, *task concerns*, *impact concerns* (see Fuller and Brown, 1975). Thus, the focus of concern changes as student teachers develop their skills and competence. Not all student teachers progress through these concerns at the same rate. Many studies with student physical education teachers (e.g. Boggess, McBride and Griffey, 1985, Meek, 1996, Hardy, 1996) support Fuller's sequential model of development of concerns, with different concerns being experienced at different stages of development as a teacher.

In the questionnaire teachers had the following options to choose from: (1) How can I survive in the classroom? Am I suited to the teaching profession? Do I have enough qualifications? How shall I establish a relationship with students? How am I perceived by students? Have I managed to present the study material successfully? What is my role in the students' learning process? How do students learn? What and to what extent can I contribute to changing student? Each individual set of questions relates to a level of professional development (Cf. Fuller, as cited in Eraut, 1997): The first set of questions listed is related to the level of surviving, the second set to the level of competencies or experience, and the third set is related to the level of professionalism and how susceptible people are to change (Fuller & Brown, 1975). The questions were listed randomly in the questionnaire.

3. 2. 5 Data analyses

The data were first analyzed: descriptively expressed scales were described with the following numerical values: 1-I totally agree with the statement on the left; 2-I agree more with the statement on the left than with the one on the right; 3-I agree more with the statement on the right than with the one on the left; 4-I totally agree with the statement on the right. The data were processed with the statistical programme package SPSS, version 12 using the Kruskal – Wallis test for checking differences between groups of teachers.

3. 2. 6 Results

Table I: Results of the Kruskal-Wallis test of differences in teachers' conceptions of their own learning according to the level of professional development

	Development level	n	Average rank*	χ^2	P
Regulation of learning	Early	87	234,56	$\chi^2 = 11,679$	P = 0,003
	Middle	221	260,42		
	Late	234	295,69		

* A higher value of the average rank signifies that teachers' conceptions are more process oriented.

Teachers' conceptions regarding regulation of learning show statistically significant differences ($\chi^2 = 11,679$, P = 0,003). The most process-oriented in conceptions about the regulation of their own learning are, as was expected, teachers from an advanced level of professional development. They are followed by teachers from the middle level, while teachers from the early level of professional development are the most traditional in their conceptions.

Table II: Results of the Kruskal-Wallis test of differences in teachers' conceptions of students' learning according to the level of professional development

	Development level	n	Average rank*	χ^2	P
Regulation of learning	Early	87	261,48	$\chi^2 = 17,574$	P = 0,000
	Middle	221	242,48		
	Late	234	302,63		

* A higher value of the average rank signifies that teachers' conceptions are more process oriented.

The results in the table show statistically significant differences in teachers' conceptions of regulation regarding students' learning. Teachers from the middle level of professional development believe that their students need external stimulation and external regulation for the learning process. Those teachers most commonly see themselves as an external stimulant. As was expected, teachers from the advanced level of professional development understand their students' learning as a self-regulated process. Somewhat surprisingly, teachers from the early level of professional development, unlike the teachers from the middle level, understand the process of learning as a self-regulated process.

4. Discussion and Conclusion

The article outlines the importance of researching teachers' conceptions. In the second part of the article, the results of empirical research are presented. The aim of the research was to demonstrate how teachers' professional development influences teachers' conceptions of their own learning and the learning of their students. The results show that more process oriented conceptions are common with teachers who are at advanced level in their professional development. The level of professional development was determined by the questions that teachers ask themselves at their work. Teachers from the advanced level of professional development place heavy emphasis on students' motivation. Further more, those teachers trust their students' capabilities and are firm in their belief that student activities and self initiatives are important for a successful learning process, and that pupils know how to evaluate their achievements. They are aware of the importance of personal experience, they appreciate advice and know how to use it in the right way in certain situations. Undoubtedly, it is teachers' personal conceptions of learning, reflective teaching and good professional qualifications that contribute to this kind of understanding and behaviour, which is characteristic of the advanced level of professional development. In order for teachers to reach this level of professional development, they need guidance and help in recognizing discrepancies

within different conceptions. Also, they need a guiding line in order to find an individual teaching style that will represent the integration of conceptions and scientific theories. Along with challenging teachers to become aware of certain discrepancies and inconsistencies, they need to be presented with alternative beliefs and examples of good practice (Nightingale, O'Neil, 1994). This type of teacher training relates closely to the Recommendations of the European Parliament and Council (Directorate General, 2004) on key competencies for lifelong learning. The purpose of this recommendation is to develop the main competencies with a special focus on learning how to learn. In order to achieve this, awareness of the personal learning process is important, as well as the capacity to recognize opportunities available and to overcome constraints on a successful learning process. Motivation and trust in oneself are of key importance for successful work.

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UČITELJEVA SHVAĆANJA REGULACIJE UČENJA – USPOREDBA IZMEĐU GRUPA UČITELJA S OBZIROM NA PROFESIONALNI RAZVOJ

Marija Javornik Krečič i Milena Ivanuš Grmek

Sažetak - Autorice naglašavaju značenje učiteljevih shvaćanja regulacije učenja. Naime, u okviru kognitivno – konstruktivističkog razumijevanja učiteljeva profesionalnog razvoja, učiteljevo postupanje je vođeno i utemeljeno u pojedinčevom sistemu uvjerenja, vrijednosti i principa. U teorijskim ishodištima ispostavljamo tri modela koja proučavaju utjecaj učiteljevih shvaćanja na njegova razmišljanja, doživljavanja i postupanja. U drugom dijelu prezentirani su rezultati istraživanja u kojem su sudjelovali slovenski osnovnoškolski (N=360) i gimnazijski (N=182) učitelji materinjeg jezika. U istraživanju su proučavane razlike u učiteljevim shvaćanjima regulacije učenja između grupa učitelja s obzirom na stupanj profesionalnog razvoja (prema F. Fuller), a koje su određene s obzirom na pitanja koja učitelj postavlja u svojem radu.

Ključne riječi: profesionalni razvoj, učiteljeva shvaćanja, samoregulativno učenje, vanjska regulacija učenja